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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,825	06/19/2007	David Aughton	650005-14	4636

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EXAMINER	
DEVITO, ALEX T	

ART UNIT	PAPER NUMBER
2856	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/591,825	AUGHTON, DAVID	
	Examiner	Art Unit	
	ALEX DEVITO	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 February 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 September 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the Applicant's communication filed on 2/02/2009. In virtue of this communication, claims 1-19 are currently presented in the instant application.

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 7-8 and 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Hsiung (U.S. Patent No. 4,547,286).

With respect to Claim 7, Hsiung discloses a loss detection system to determine and monitor containment losses in an open channel networks, said system comprising: first [74] and second [76] flow regulators to allow flow of liquid into and out of at least one pool of fluid flowing through said open channel network (note in figure 1, there are 3 open tanks connected), first [74] and second [76] flow sensors co-operating with said flow regulators, and computational means [78] communicating with said flow regulators and said flow sensors to control operation of said flow regulators (column 7 lines 27-40) and to determine said containment losses by calculating the measured flow into said at least one pool through a first of said flow regulators and subtracting the measured flow

out of said at least one pool through a second of said flow regulators (column 7 lines 27-40).

With respect to Claim 8, Hsiung discloses a loss detection system of claim 7, further comprising at least one liquid metered delivery means [74] which communicates with said computational means, said computational means [78] subtracting the measured flow through said at least one liquid metered delivery means from the measured flow into said at least one pool (column 7 lines 27-40 and note that for the processor to maintain a constant level, it must subtract the inflow from the total to determine the outflow).

With respect to Claim 11, Hsiung discloses a method of loss detection to determine and monitor containment losses in an open channel network , said open channel network comprising first [74] and second [76] flow regulators to allow flow of liquid into and out of at least one pool of fluid flowing through said open channel network (note in figure 1, there are 3 open tanks connected), first [74] and second [76] flow sensors co-operating with respective flow regulators, and computational means [78] communicating with said flow regulators and said flow sensors to control operation of said flow regulators, said method comprising: determining, using said computational means, said containment losses by calculating the measured flow into said at least one pool through said first flow regulator and subtracting the measured flow out of said at least one pool through said second regulator (column 7 lines 27-40).

With respect to Claim 12, Hsiung discloses the method of claim 11, further comprising subtracting measured flow through at least one liquid metered delivery

means [74] which communicates with said computational means [78] from the measured flow into said at least one pool through said first flow regulator (column 7 lines 27-40 and note that for the processor to maintain a constant level, it must subtract the inflow from the total to determine the outflow).

4. Claims 1, 3-6, and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mastandrea (U.S. Patent No. 4,852,054) in view of Hsiung (U.S. Patent No. 4,547,286).

With respect to Claim 1, Mastandrea discloses a method of loss detection to determine containment losses due to leakage (column 22, lines 34-40), said method comprising:, determining evaporation losses, and calculating the containment losses by subtracting the evaporation losses from the nett flow into said at least one pool (column 22, lines 49-51, note nett flow is equivalent to a volume change). Mastandrea does not disclose containment losses due to seepage, maintaining a constant level in at least one pool of fluid flowing between two flow regulators in an open channel nor monitoring the nett flow into said at least one pool to maintain said constant level.

Hsiung discloses maintaining a constant level in at least one pool of fluid flowing between two flow regulators [74,76] in an open channel and monitoring the nett flow into said at least one pool to maintain said constant level (column 7, lines 35-38), but does not disclose containment losses due to seepage.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of monitoring containment losses of Mastandrea and

include maintaining a constant level between two flow regulators and monitoring the nett flow into said at least one pool as taught by Hsiung for the advantage of preventing the pool from emptying. Furthermore, to employ the corresponding system and the method of loss detection of the combination of Mastandrea and Hsiung to determine containment losses due to seepage would have been deemed obvious to a person skilled in the art since seepage has been commonly known as another form of loss in the determination of loss.

With respect to Claim 2, Mastandrea discloses a method of loss detection to determine containment losses due to leakage, said method comprising: measuring the change in volume of at least one pool, determining the evaporation losses, and calculating the containment losses by subtracting the evaporation losses from the change in volume of said at least one pool (column 22, lines 20-50). Mastandrea does not disclose losses due to seepage (see prior paragraph) nor does he disclose fluid flowing between flow regulators in an open channel.

Hsiung discloses fluid flowing through flow regulators in an open channel (see column 7, lines 27-41).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mastandrea by flowing fluid through regulators in an open channel as taught by Hsiung for the benefit of monitoring loss detection between multiple tanks.

With respect to Claim 3, the combination of Mastandrea and Hsiung disclose the method of claim 1, further comprising using first and second [Hsiung's element 74,76]

flow sensors to measure the flow in and out of the pool (see Hsiung, column 7, lines 35-38), and using computational means [78] communicating with said flow regulators and said flow sensors to control operation of said flow regulators and to determine said containment losses by calculating the measured flow into said at least one pool through a first of said flow regulators and subtracting the measured flow out of said at least one pool through a second of said flow regulators (see Hsiung, column 7, lines 27-40).

With respect to Claim 5, the combination of Mastandrea and Hsiung disclose the method of claim 3, further comprising subtracting measured flow through at least one liquid metered delivery means, which communicates with said computational means, from the nett flow into said at least one pool (see Hsiung, column 7, lines 27-40).

With respect to Claim 6, the combination of Mastandrea and Hsiung disclose the method of claim 3, wherein said computational means determines theft loss by treating evaporation, seepage and leakage as constants, wherein said containment losses comprise losses from theft, evaporation, seepage and leakage (Note that the processor 78 of Hsiung continually monitors the flow and amount of fluid leaving the tank, while the process of Mastandrea accounts for containment losses such as evaporation and leakage. This method accounts for fluid leaving the tank, including leaving due to theft).

With respect to Claims 15 and 16, the combination of Mastandrea and Hsiung disclose all the claimed limitations as expressly recited in claims 1 and 3, except for the claimed formula.

The applicant, however, states, in page 6, lines 19-29 of the submitted specification "The evaporation loss 48 can be calculated using standard techniques for the evaporation of water from a free surface. An example of such a technique being given by the following formula:

$E_{vp} = 0.01 \times P_f \times E_{pp} \times SA$

Where:

E_{vp} = the volume (Megalitres) lost to evaporation from the pool water surface for a period 'p'.

P_f = pan factor (Class A)

E_{pp} = pan evaporation for period 'p' (millimeters)

SA = surface area of the pool "

Therefore, to employ the claimed formula in the method of detecting a loss of the combination of Mastandrea and Hsiung for an accuracy of loss detection would have been deemed obvious to one of ordinary skill in the art at the time of the invention.

With respect to Claim 17, the combination of Mastandrea and Hsiung disclose the method of claim 5, wherein said computational means determines theft loss by treating evaporation, seepage and leakage as constants (see Mastandrea column 22, lines 34-40 for determination of containment losses), wherein said containment losses comprise losses from theft, evaporation, seepage and leakage (Note that the processor 78 of Hsiung continually monitors the flow and amount of fluid leaving the tank, while the process of Mastandrea accounts for containment losses such as evaporation and leakage. This method accounts for fluid leaving the tank, including leaving due to theft).

6. Claims 9-10, 13-14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsiung (U.S. Patent No. 4,547,286) in view of Mastandrea (U.S. Patent No. 4,852,054).

With respect to claims 9, 13, and 18-19, Hsiung discloses all the claimed limitations, as expressly recited in claims 7-8 and 11-12, except for specifying that the computational means determines theft loss by treating evaporation, seepage and leakage as constants, wherein said containment losses comprise losses from theft, evaporation, seepage and leakage.

Mastandrea teaches that containment losses such as leakage can be more accurately determined by accounting for evaporation and subtracting the evaporation losses from the change in volume of at least one pool.

Neither Mastandrea nor Hsiung teaches that the computational means determines theft loss by treating evaporation, seepage and leakage as constants, wherein said containment losses comprise losses from theft, evaporation, seepage and leakage. However, theft is described in the applicant's disclosure as a spike in the continuously monitored liquid level and seepage has been commonly known as a source of loss.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the method of loss detection of Hsiung by taking evaporation into consideration as a source of loss as taught by Mastandrea for an accurate determination of loss. Furthermore, to take both theft and seepage into

consideration of all sources of losses when employing the method of the combination of Hsiung and Mastandrea to enhance the accuracy of loss would have been convincingly obvious to a person skilled in the art.

With respect to claims 10 and 14, the combination of Mastandrea and Hsiung disclose all the claimed limitations as expressly recited in claims 9 and 13, except for the claimed formula.

The applicant, however, states in page 6, lines 19-29 "The evaporation loss 48 can be calculated using standard techniques for the evaporation of water from a free surface. An example of such a technique being given by the following formula:

$E_{vp} = 0.01 \times P_f \times E_{pp} \times SA$

Where:

E_{vp} = the volume (Megalitres) lost to evaporation from the pool water surface for a period 'p'.

P_f = pan factor (Class A)

E_{pp} = pan evaporation for period 'p' (millimeters)

SA = surface area of the pool "

Therefore, to employ the claimed formula in the method of detecting a loss of the combination of Hsiung and Mastandrea for an accuracy of loss detection would have been deemed obvious to one of ordinary skill in the art at the time of the invention.

Response to Arguments

7. Applicant's arguments filed 2/2/09 have been fully considered but they are not persuasive.

In paragraph 3 of page 8, the applicant argues that Hsiung is directed at a closed channel water system. For additional support of figure 1 being open, please refer to the figure and to column 7, lines 62-65 where the prior art states "open-topped, vertical, circular cylinder shown in figures 1 and 8".

In paragraph 1 of page 9, the applicant argues that Hsiung is a closed system and that no containment losses are computed. The nature of the closed system is addressed in the prior paragraph. The containment losses are inherently computed by the processor 78. In order to keep the level constant by modulating the apertures of the valves, the processor would need to know the flow in, flow out, and current amount. Thus to maintain a constant level the processor would set the flow in to the flow out plus any extra losses.

In paragraph 3 of page 9, the applicant argues that Mastandrea is directed towards a closed system. While this might be a correct assessment of Mastandrea, it is not germane to the rejection. The teachings of leakage detection while accounting for evaporation has nothing to do with the openness of the container and therefore is appropriate to employ with the open system of Hsiung. Furthermore the examiner finds it reasonable to argue that if a system has a leak, it isn't closed.

In paragraph 5 of page 9, the applicant argues that neither Hsiung nor Mastandrea teaches calculation of containment losses. Mastandrea goes over calculation of evaporation and leakage in column 22 of his disclosure and note Hsiung's processor (column 7 lines 27-40 and note that for the processor to maintain a constant level, it must subtract the inflow from the total to determine the outflow). The examiner

thus finds, as the prior arts are combined above, that calculation of containment losses are disclosed.

8. Applicant's arguments with respect to claims 2 and 15 have been considered but are moot in view of the new ground(s) of rejection.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX DEVITO whose telephone number is (571)270-7551. The examiner can normally be reached on flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 5712722208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ALEX DEVITO/
Examiner, Art Unit 2856
4/15/09

/Hezron Williams/
Supervisory Patent Examiner, Art Unit 2856